

# YAMAHA

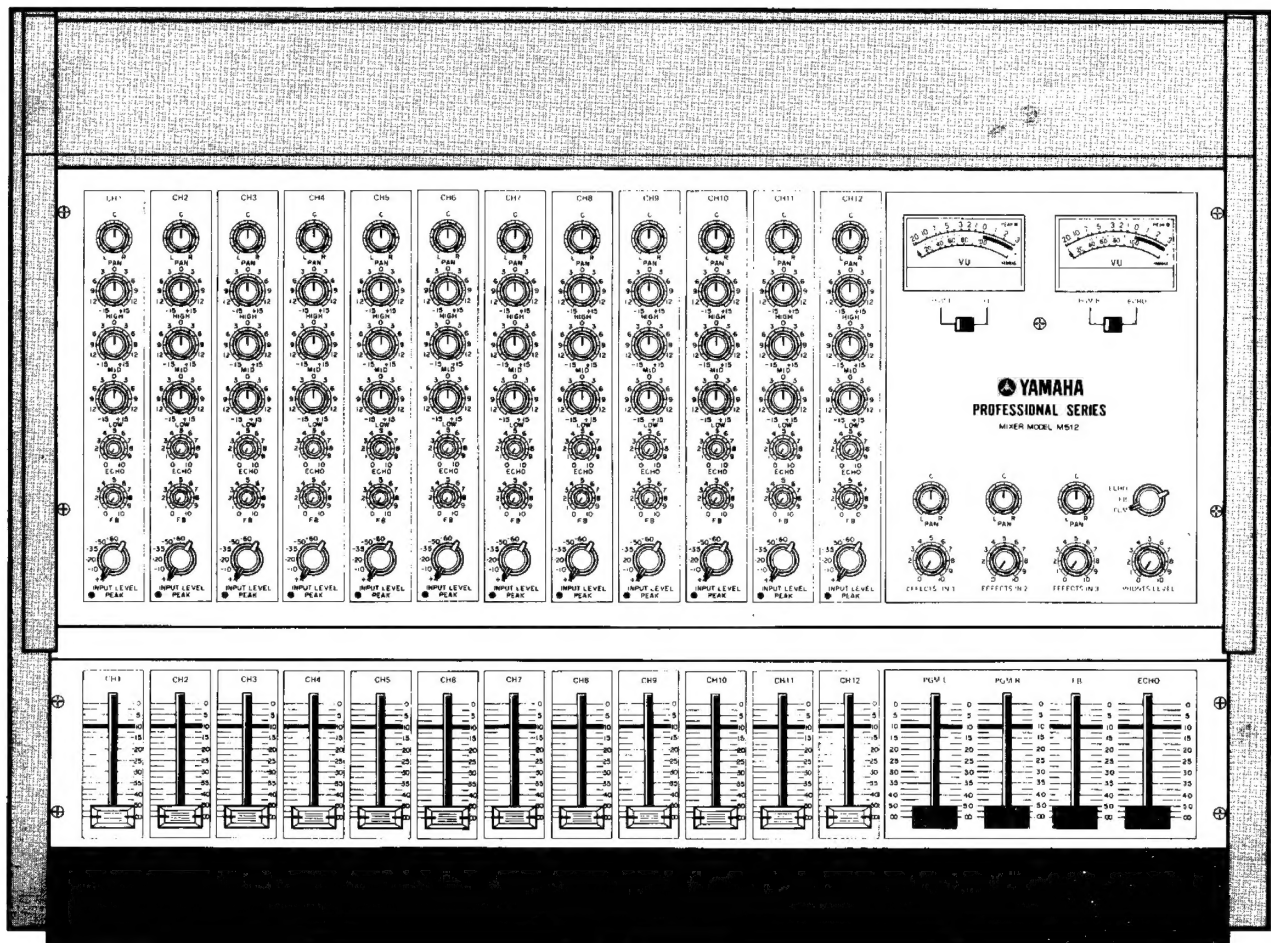
# PROFESSIONAL

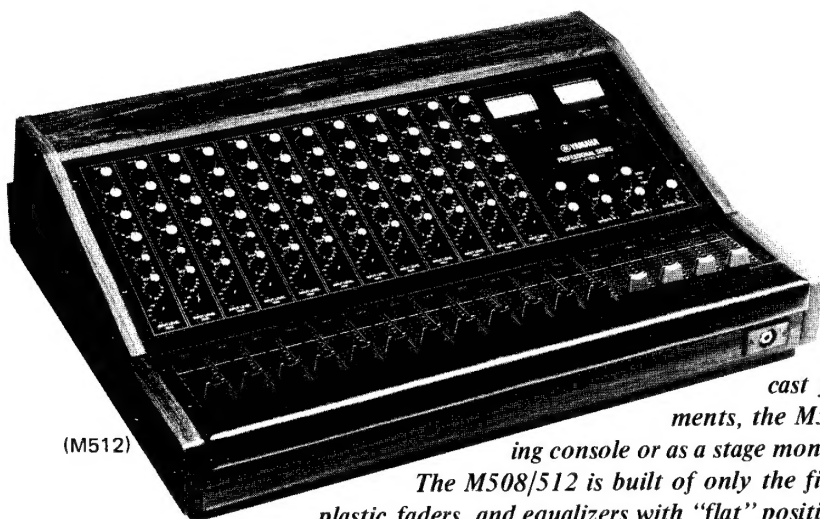
# SERIES

# MIXER

# M508/M512

OWNER'S MANUAL





(M512)

*The Yamaha M508/512 is a sophisticated professional mixer intended for fixed or portable sound reinforcement, as well as recording, broadcast production, or any critical sound mixing application. With 5 outputs, 4 mixing busses and 8/12 input channels, the M508/512 makes an excellent main mixing board for small to medium scale nightclub, theatrical and broadcast jobs. In large scale concert reinforcement environments, the M508/512 can be used as an adjunct to the main mixing console or as a stage monitor mixer.*

*The M508/512 is built of only the finest components such as smooth, quiet conductive plastic faders, and equalizers with "flat" position detents. These controls are calibrated accurately, in dB, for precise, repeatable settings that save valuable set-up time. To ensure the M508/512 holds up under real world" conditions, it is equipped with a bipolar 25V power supply that affords a generous margin of headroom (an easy +24 dB output). Internally the M508/512 has the convenience of modular plug-in circuitry, and outside a solid front panel adds to strength and durability. You'll appreciate the extra refinements in the M508/512's advanced technology, reliability and human engineering. To take full advantage of your M508/512 mixer, please read this manual carefully.*

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# SPECIFICATIONS

<b>Frequency Response</b>	+1, -3dB, 20Hz to 20kHz; +0, -0.5dB, 50Hz to 10kHz.
<b>Total Harmonic Distortion (THD)</b>	Less than 0.5% @+10dB, 20Hz to 20kHz, Less than 0.1% @+20dB, 70Hz to 20kHz.
<b>*Hum and Noise</b> (20Hz to 20kHz, 150Ω source) (Input Selector set at "-60")	-127dB Equivalent input noise (EIN); -95dB residual output noise with all faders down. -72dB PROGRAM OUT (76dB S/N); Master fader at nominal level & all channel faders down. -63dB PROGRAM OUT (67dB S/N); Master fader and one channel fader at nominal level. -72dB ECHO OR FB OUT (76dB S/N); Master fader at nominal level and all FB or Echo Mix controls at minimum level. -63dB ECHO or FB OUT (67dB S/N); Master fader and one FB or Echo Mix control at nominal level.
<b>Maximum Voltage Gain</b> (Input Selectors set at "-60"dB, where applicable)	PROGRAM 84dB; Channel In to PGM Out. FB 84dB; Channel In to FB Out. ECHO** 84dB; Channel In to Echo Out. EFFECTS 20dB; EFFECTS IN to PGM Out. SUB 10dB; SUB IN to PGM Out.
<b>Equalization</b>	LOW ±15dB @100Hz, shelving. MID ±15dB @2kHz, peaking. HIGH ±15dB @10kHz, shelving.
<b>Inputs to Console</b>	M508 8 x INPUT (Channel Input to PGM L & R Busses) M512 12 x INPUT (Channel Input to PGM L & R Busses) 2 x PGM SUB IN (Submixer Input to PGM busses). 1 x FB SUB IN (Submixer Input to FB bus). 1 x ECHO SUB IN (Submixer Input to Echo bus). 3 x EFFECTS IN (Auxiliary program input and effects return).
<b>Mixing Busses</b>	2 x Main Program (L & R). 1 x Foldback. 1 x Echo.
<b>Console Outputs</b>	2 x PGM (L & R) 1 x FB 1 x ECHO 1 x PHONES (STEREO)
<b>Crosstalk</b>	-60dB @1kHz, adjacent inputs; -60dB @1kHz, input to output.
<b>VU Meters</b>	2 illuminated meters; one switchable for PGM L or FB, other for PGM R or ECHO. (0 VU = +4dB).
<b>Peak Indicators</b>	1 LED built into each input channel and each VU meter. Input LEDs turn on when post-input selector signal reaches or exceeds 3dB below clipping. Meter LEDs turn on when output signal reaches or exceeds 10dB below clipping.
<b>Phantom Power</b>	For remote powering of condenser microphones, DC can be switched on via a rear panel phantom power switch. (+40V DC for US & Canadian models and +48V DC for the other model) Voltage is applied to pins 2 and 3 of the input XLR connectors via a pair of 6.8kΩ resistors that feed each balanced input transformer.
<b>Finish</b>	Black painted panels, rosewood veneer cabinet, color coded knobs.
<b>Dimensions</b>	M508 20-3/8" (517mm) wide x 7-1/2" (191mm) high x 19-1/2" (493mm) deep M512 25-7/8" (657mm) wide x 7-1/2" (191mm) high x 19-1/2" (493mm) deep (refer to P.10)
<b>Weight</b>	M508 34 pounds (15.4 kg) M512 44 pounds (20 kg)
<b>Power Supply</b>	Self-contained module inside the console, fused and fully regulated. US & Canadian models 120V AC (nominal), 50 or 60Hz; 105V AC minimum, 130V AC maximum; 60W for US model and 70VA for Canadian model Other model 110/120/220/240V AC selectable, 50 or 60Hz; 70W

\* Measured with a 6dB/octave filter @12.47kHz; equivalent to a 20kHz filter with infinite dB/octave attenuation.

\*\* Maximum voltage gain (Echo) measured with channel fader at nominal level.

• 0dB = 0.775V r.m.s.

• All specifications subject to change without notice or obligation.

# FRONT PANEL OPERATION *INPUT CHANNELS*

## ① CHANNEL FADER

The Fader continuously varies the channel output level to the left and right program mixing busses. The nominal setting is "10" position, as indicated by a heavier calibration line. Given an input signal of equal level to the setting of the Input Selector, a nominal fader setting applies an optimum level to the mixing busses. (A nominal channel fader and master fader setting produce the nominal +4 dB output). The Fader is calibrated in dB of attenuation.

## ② INPUT LEVEL SELECTOR AND PEAK INDICATOR

The Input Level Selector changes the input sensitivity to accommodate nominal input levels of -60, -50, -35, -20, -10 or +4 dB, corresponding to low level dynamic or ribbon mics, medium and high level condenser mics, preamplified electric instruments, and low or high line level audio processing or mixing equipment (see chart).

### GENERAL SETTINGS OF INPUT LEVELS

INPUT LEVEL	INPUT SOURCE
-60	Low-level microphone (dynamic type)
-50	
-35	High-level microphone (condenser type)
	Electrical, electronic musical instruments
-20	Low-level line (audio processing)
	Electrical, electronic musical instruments
-10	Middle-level line (audio equipment, professional equipment)
+4	High-level line (professional equipment)

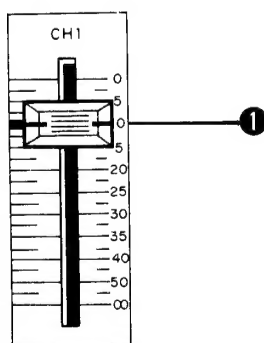
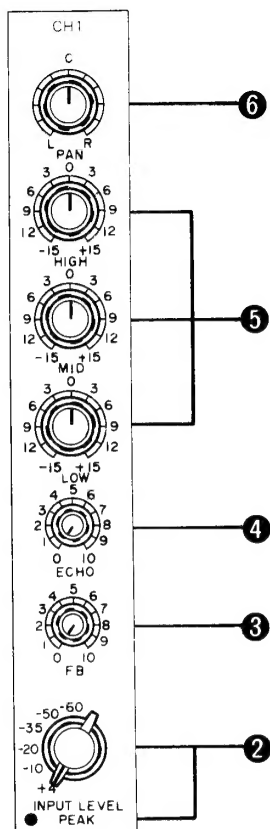
The adjacent Peak indicator LED turns ON when the preamplified signal is 3 dB below clipping. To set the Selector for the best combination of maximum headroom and minimum noise characteristics, begin with it at +4 dB position, apply a typical input signal, and move the Selector to more sensitive settings until the LED begins to flash a lot or to stay on constantly. Then back off one step on the selector switch so the LED flashes on only occasionally, during the loudest of program peaks.

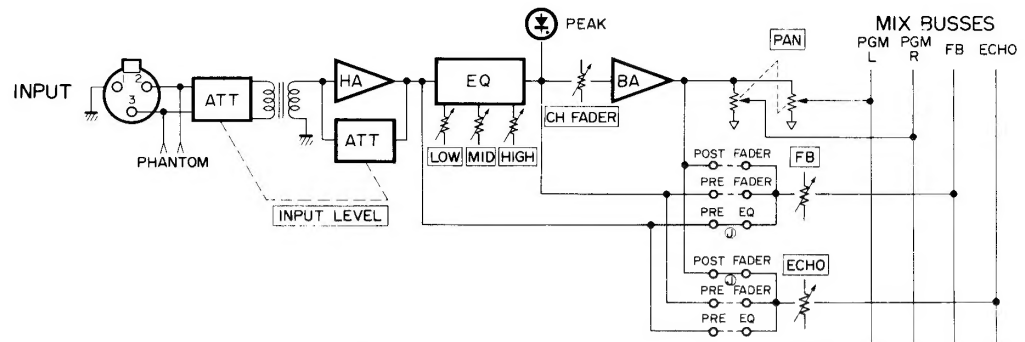
## ③ FOLDBACK (FB) MIX LEVEL

This control adjusts the amount of channel signal applied to the foldback mixing bus. The mixer is factory wired to derive the foldback signal ahead of the channel Fader and Equalizer (pre-Fader/pre-EQ) since program changes intended for house feed could distract performers who use the foldback circuit for monitoring themselves. However, convenient jumper terminals on the channel's circuit card enable any competent service technician to easily re-strap the foldback control for post-EQ/pre-fader or post EQ/post-fader operation, as may be desired for special effects, or where foldback is not required and the foldback bus instead doubles as a second echo or effects bus.

## ④ ECHO MIX LEVEL

This control adjusts the amount of channel signal applied to the Echo mixing bus. The mixer is factory wired to derive the echo signal after the channel Fader and Equalizer so that a channel fade or tone adjustment will also be reflected in the channel's contribution to the echo or reverb system (a pre-Fader echo feed would force the operator to turn down the Echo control along with channel Fader, or else the echo would continue indefinitely after the channel has been faded). Again, the echo circuit can be internally jumpered for post-EQ/pre-fader or pre-EQ/pre-fader operation, as might be desired for special effects or where the echo is not required and the echo bus instead doubles as a second foldback bus.



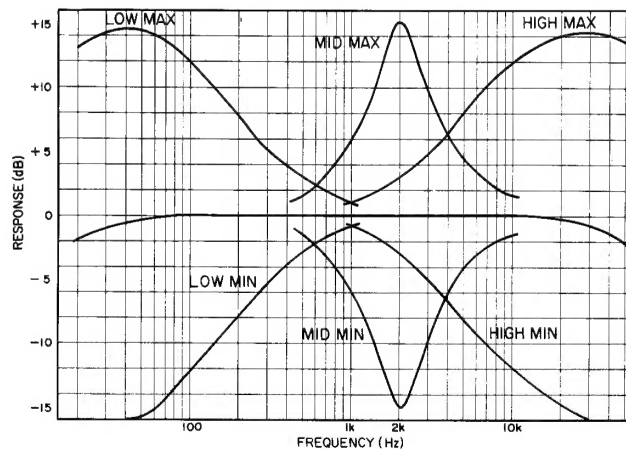


① Jumper lead on circuit board. FB and ECHO can be jumpered for post-Fader, pre-Fader or pre-EQ by changing the jumper lead connection.

## 5 EQUALIZER

The Low, Mid and High EQ controls alter the channel's frequency response with up to 15 dB of boost (clockwise rotation) or cut (counterclockwise rotation). Continuously variable shelving-type equalization is provided at 100Hz (Low) and 10kHz (High); peaking equalization is provided at 2kHz (Mid). Refer to the illustration. The controls are calibrated in dB; centering them in the detented "0" position ensures flat audio response by defeating the equalization.

In many mixes, EQ is used to modify tonal characteristics for better separation (i.e., given two similar-sounding instruments, you might boost one with the Mid control and boost the other with the High control). EQ can be used to correct certain acoustic imbalances, such as using High boost to liven up a "dead" room, or Low cut to avoid the boominess in some rooms. Another use of EQ is to avoid leakage and excess noise without significantly changing the sound. For example, if a bass drum is the only sound on a given channel, you might wish to cut the High control and thus eliminate background hiss as well as leakage from strings. Another example—a flute is the only sound on a given channel, so you cut the Low control and thus eliminate rumble and some wind noises. Since flutes don't produce much bass and bass drums don't produce much high frequency sound, the EQ does not drastically change the instrument sound.

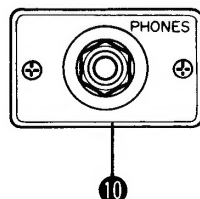
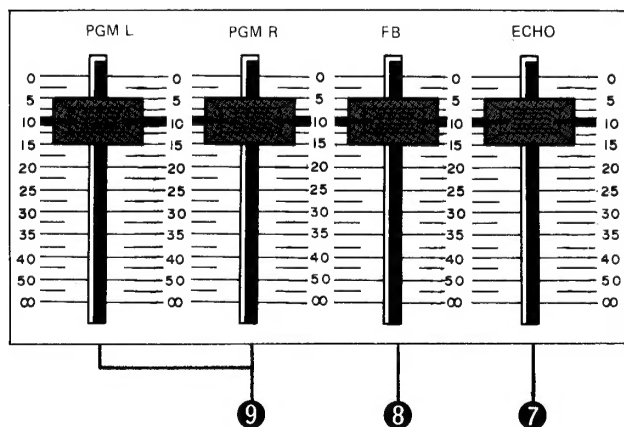
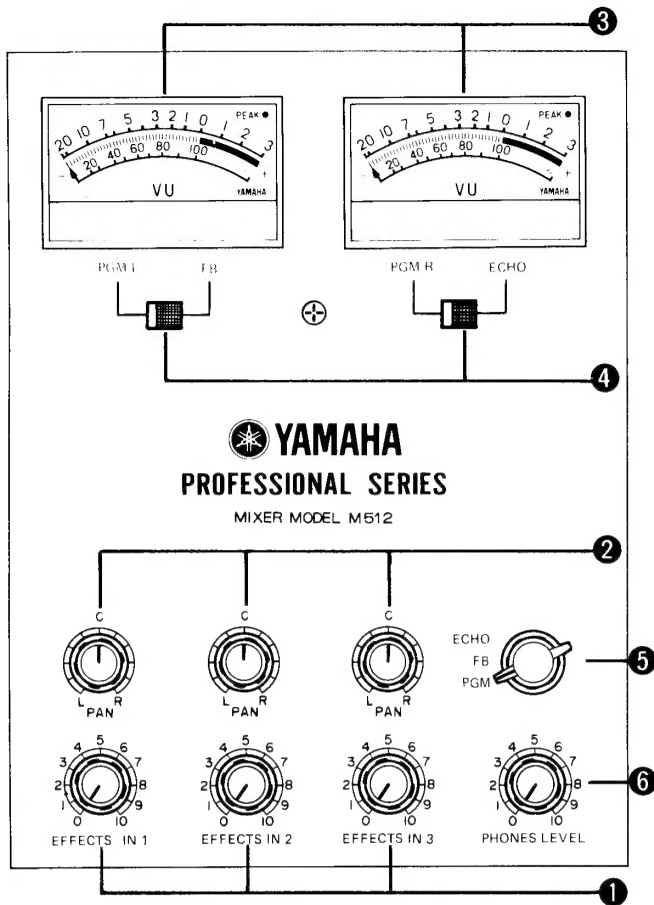


## 6 PAN POT

This rotary control assigns the channel Fader output to the stereo program mix busses, anywhere from all the way left to all the way right. Centering the Pan pot places the signal equally in both busses (sound is centered); at this point, each bus is fed a signal 3 dB below the maximum full-left or full-right panned level. This ensures that the combined stereo output power remains constant as the signal is panned.

# FRONT PANEL OPERATION

## OUTPUT SECTION

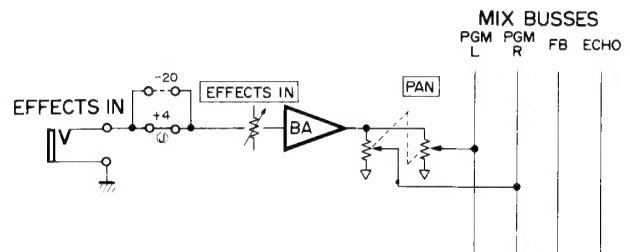


### 1 EFFECTS IN LEVEL

This knob adjusts the incoming signal level from the Effects input jack before the signal is applied to the program busses. The nominal setting is approximately #7 on the control scale. Turn the control all the way down if no effects input is connected. Typically, an echo or reverb return could be brought in here, or a tape recorder line output.

### 2 EFFECTS IN PAN

This knob adjusts the placement of the Effects input signal, after level control, onto the left and right program busses. If a stereo chamber or tape machine is connected to two Effects inputs, pan one fully left and the other fully right for "normal" stereo separation. Less separation is obtained by panning the controls partially toward center.

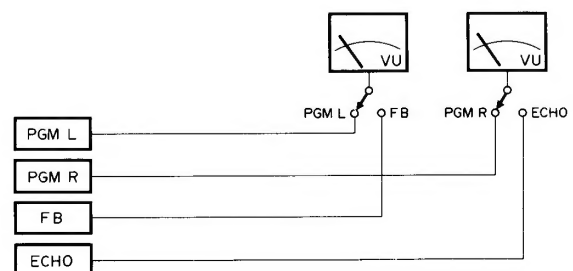


### 3 VU METERS AND PEAK INDICATORS

The VU meters respond to average program levels in much the same way our ears perceive loudness. The meters are thus not fast enough to "see" brief signal peaks that can cause distortion. That's why there is a red LED in the corner of each meter, one fast enough to react to even a brief transient peak by turning on whenever 10 dB, or less, headroom remains (i.e., at +14 dB output level).

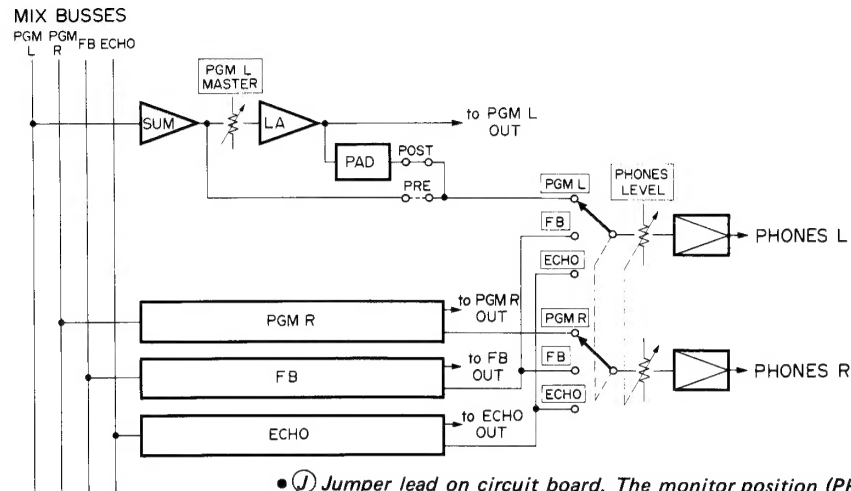
### 4 METER SELECTOR SWITCHES

The left-hand switch determines whether the VU meter above it displays the left program output (PGM L) or the foldback output (FB) level. Similarly, the right-hand switch determines whether the above meter displays PGM R or echo output level.



## 5 HEADPHONE SELECTOR SWITCH

This 3-position rotary switch determines whether the phones jack, along the mixer's front edge, is fed from the stereo program mix bus (left and right), the foldback mix bus or the echo mix bus. In the first instance, the phones are fed a stereo signal; in the latter two, the both earpieces of the stereo headphones are fed the same mono signal.



## 6 HEADPHONE LEVEL CONTROL

Given any Headphone Selector switch setting, this knob adjusts the level fed to the Phones jack, but does not affect the corresponding console output. That is, if headphones are set to FB position, you could turn the phones control all the way down without affecting the FB output; only the phones would be quiet. On the other hand, if you bring down the FB Master Fader, the FB level will drop in the FB output and the headphones.

## 7 ECHO MASTER FADER

This Master Fader adjusts the overall level of the Echo mix bus prior to feeding the Echo output. This fader controls all signals from the channel Echo controls and from the Echo Sub input jack. Nominal setting is “-10 dB”, which means that the echo output will be +4 dB at this setting provided one input channel's Echo control and Fader are set at nominal, and that the signal applied to that channel is at exactly the level set with the channel's Input Selector switch.

## 8 FB (FOLDBACK) MASTER FADER

This Master Fader adjusts the overall level of the Foldback mix bus prior to feeding the Foldback output. This fader controls all signals from the channel FB controls and from the FB Sub input jack. Nominal setting is “-10 dB”

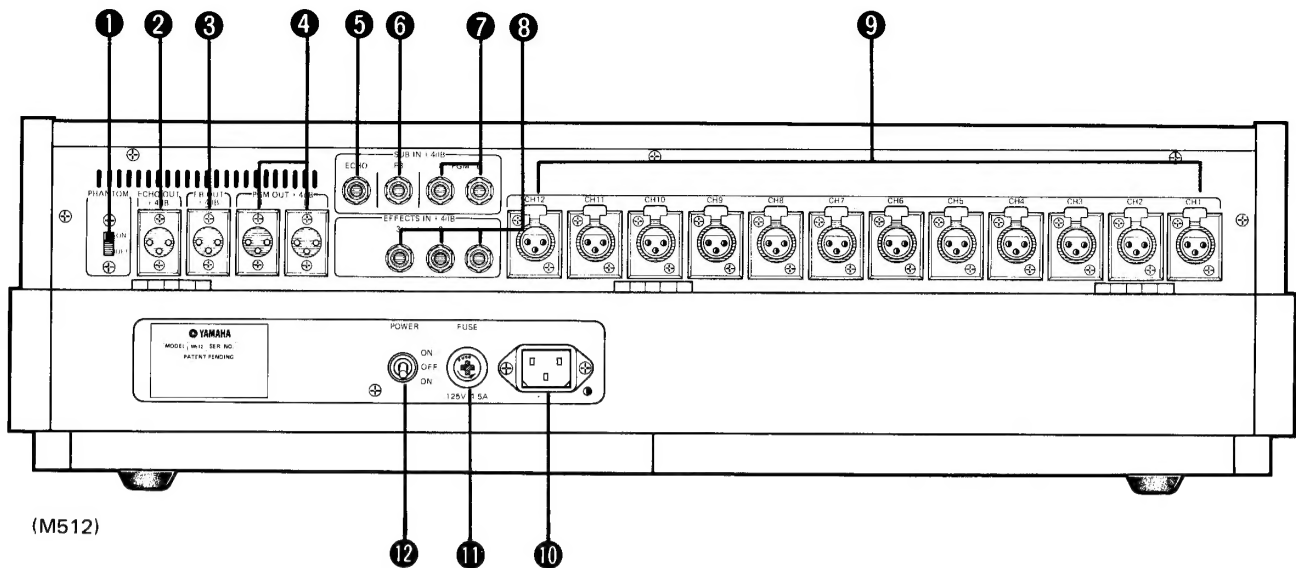
## 9 PGM L AND PGM R MASTER FADERS

These Master Faders adjust the overall level of their respective left and right Program mixing busses prior to feeding the Program outputs. These faders control all signals from the channel pan controls, effects pan controls and PGM sub inputs. Nominal setting is “-10 dB”.

## 10 PHONES JACK (On front of mixer, under Echo Master Fader)

This stereo phone jack will accept any pair of 8Ω or higher impedance stereo headphones. The signal will be stereo if the Phones Selector switch is in Program position, but both earpieces will receive the same mono signal in FB and Echo positions. This Tip/Ring/Sleeve jack is intended for standard 1/4" (6.3mm) stereo phone plugs.

# REAR PANEL FEATURES



**NOTE** All XLR connectors in the M512 are wired as follows:  
pin 2 = signal high, pin 3 = signal low, pin 1 = shield.

## ① PHANTOM POWER SWITCH

When on, the switch applies 40V (General model : 48 V) across pins 2 and 3 of the channel input jacks, via a pair of 6.8k $\Omega$  resistors, for remote powering of condenser microphones. This will not harm dynamic microphones. To avoid hum with certain unbalanced sources, phantom power may be shut off.

## ② ECHO OUT CONNECTOR

This Echo Fader output is a male XLR connector, transformer-isolated (floating) with +4 dB (1.23V) nominal level. The actual source impedance is 150 $\Omega$ , and the output will drive 600 $\Omega$  or higher impedance loads, including virtually all professional echo and reverb devices; if echo or other effects are not required, the output may be used as a second foldback send or for making a mono tape recording.

## ③ FB OUT CONNECTOR

This Foldback Fader output is a male XLR connector, transformer-isolated (floating) with +4 dB (1.23V) nominal level. The actual source impedance is 150 $\Omega$ , and the output will drive 600 $\Omega$  or higher impedance loads, including virtually all professional graphic equalizers, electronic crossovers, and power amplifiers.

## ④ PGM R & PGM L OUT CONNECTORS

These PGM Master Fader outputs are male XLR connectors, transformer-isolated (floating) with +4 dB (1.23V) nominal level. The actual source impedance is 150 $\Omega$ , and the outputs will drive 600 $\Omega$  or higher

impedance loads, including virtually all professional graphic equalizers, electronic crossovers, power amplifiers, and tape recorders.

## ⑤ ECHO SUB IN CONNECTOR

This standard 1/4" (6.3mm) phone jack is an unbalanced input that applies a nominal +4 dB (1.23V) signal to the echo mix bus, via an internal isolation/attenuation pad. Actual input impedance is 1k $\Omega$ , and the input is intended for nominal 600 $\Omega$  sources. Echo Sub In may be used for linking the echo output of another mixer to that of the M512 for expansion of the mixing system, or for applying any suitable line-level source to the echo mix, subject only the M512 Echo Master Fader.

## ⑥ FB SUB IN CONNECTOR

The FB Sub In connector is identical to its Echo Sub In counterpart, except it applies signal to the FB mix bus.

## ⑦ PGM L & PGM R SUB IN CONNECTORS

The PGM L and R Sub In connectors are identical to the adjacent Echo and FB sub in connectors, except they apply signal to the stereo program mix busses. They may be used for linking the program outputs of another mixer to the M512 for expansion of the mixing system, or for applying any suitable line-level source to the program mix, including the output of a professional tape recorder.



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## **⑧ EFFECTS IN JACK**

This standard 1/4" (6.3mm) phone jack is an unbalanced input that applies a nominal +4 dB (1.23V) signal to the left and right program mixing busses via the Effects Level control and pan pot. Actual input impedance is 10k $\Omega$ , and the input is intended for nominal 600 $\Omega$  sources, such as the return from echo or reverb devices, the output of a tape recorder, or the line output of another mixer.

## **⑨ CHANNEL INPUT CONNECTORS (x 12)**

These twelve female XLR connectors are balanced transformer isolated inputs that apply nominal -60 dB to +4 dB signals (depending on Input Selector settings) to their respective input channels. The actual input impedance is 800 $\Omega$ , but when the Input Selector is set to -20 dB, -10 dB and +4 dB, the impedance is raised to 1k $\Omega$ , 2k $\Omega$  and 4k $\Omega$  respectively.

## **⑩ AC POWER CONNECTOR**

This 3-prong NEMA connector accepts the mixer's detachable AC power cord (ground type). In the model for the U.S. and Canada, the built-in power module is wired for 110 to 120V AC mains, 50 or 60Hz, and uses a maximum of 60W in case of the U.S. and 70VA in case of Canada. In the other model, any one of 110, 120, 220 and 240V can be selected and the maximum power consumption is 70W. Because the power supply is fully regulated, typical line voltage variations will not adversely affect performance.

## **⑪ MM. FUSE**

The fuse should only be replaced with the same type and rating:

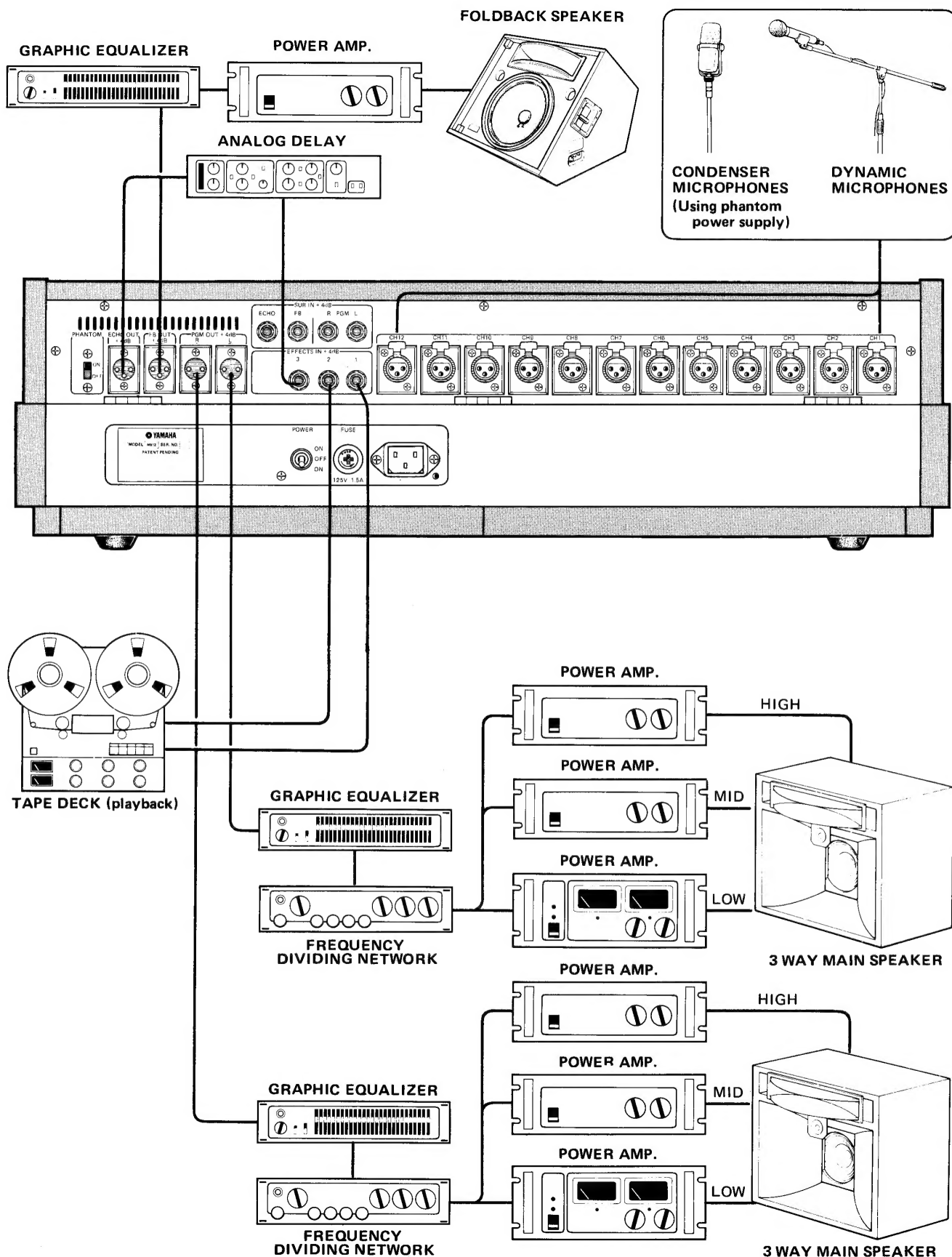
3A, 1.5A for the U.S. and Canadian models.

T1.25A 250V for the other model.

## **⑫ AC POWER SWITCH**

This 3-position switch provided in the model for the U.S. and Canada turns on the AC power to the mixer, as indicated by the VU meter lamps. The switch has two "ON" positions for reversing the polarity of the incoming power line, which reduces hum in some instances. The other model is provided with 2-position switch.

# CONNECTION



# INSTALLATION NOTES

## PLACEMENT

The M512 is a fully portable, self-contained mixer built in a hard, protective case. It may be placed on a table top or a shelf at any convenient working height, or it can be recessed for permanent, low profile mounting. Whether recessed, or table top mounted, the mixer should be on a level surface, with sufficient rear panel clearance for the input and output cables.

## THEORY OF GROUNDING

Ground loops (also called "hum loops"), are often caused by multiple paths from equipment grounds to the AC main ground ("earth" ground). Ground loops tend to induce hum and allow noise to develop in an audio system; in severe instances, equipment may begin to oscillate due to ground loops. This oscillation can cause distortion and even damage to amplifiers and loudspeakers. One way to avoid ground loops is to make sure that there is just one path to the AC ground (earth ground) for the entire audio system. One popular method, though not necessarily the best or only one, is to cut the shield ground of XLR cables at the input side of the cable. Another technique is to ground all shields at one piece of equipment, typically the mixer, and to cut the shields at the other ends of the cables. (With unbalanced phone jack cables, the shield must be connected at both ends.)

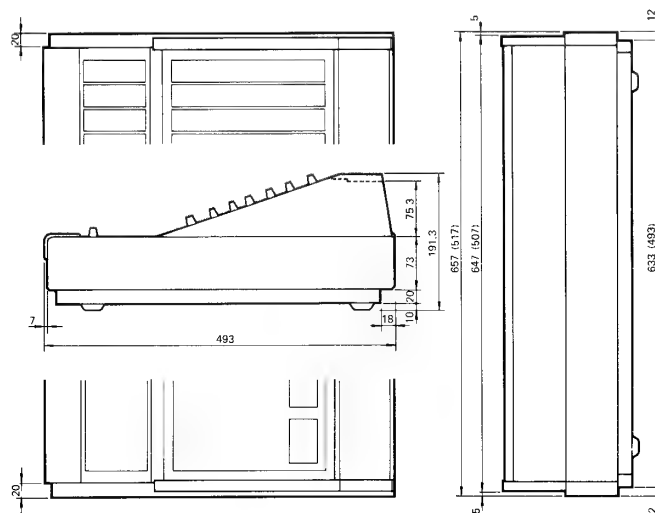
## AUDIO CONNECTORS AND CABLE TYPES

The M512 mixer is fitted with only four types of audio connectors: 3-pin XLR male, 3-pin XLR female, 2-conductor standard phone jacks and 3-conductor standard phone jacks (stereo).

2-Conductor (twisted pair) shielded cable is best for all XLR connections. Belden No. 8412, or its equivalent, is an excellent cable due to its heavy construction. This type of cable should be used for all portable applications. "Snake" cables containing multiple shielded pairs must be handled very carefully because the leads tend to be fragile, and a broken conductor cannot be repaired.

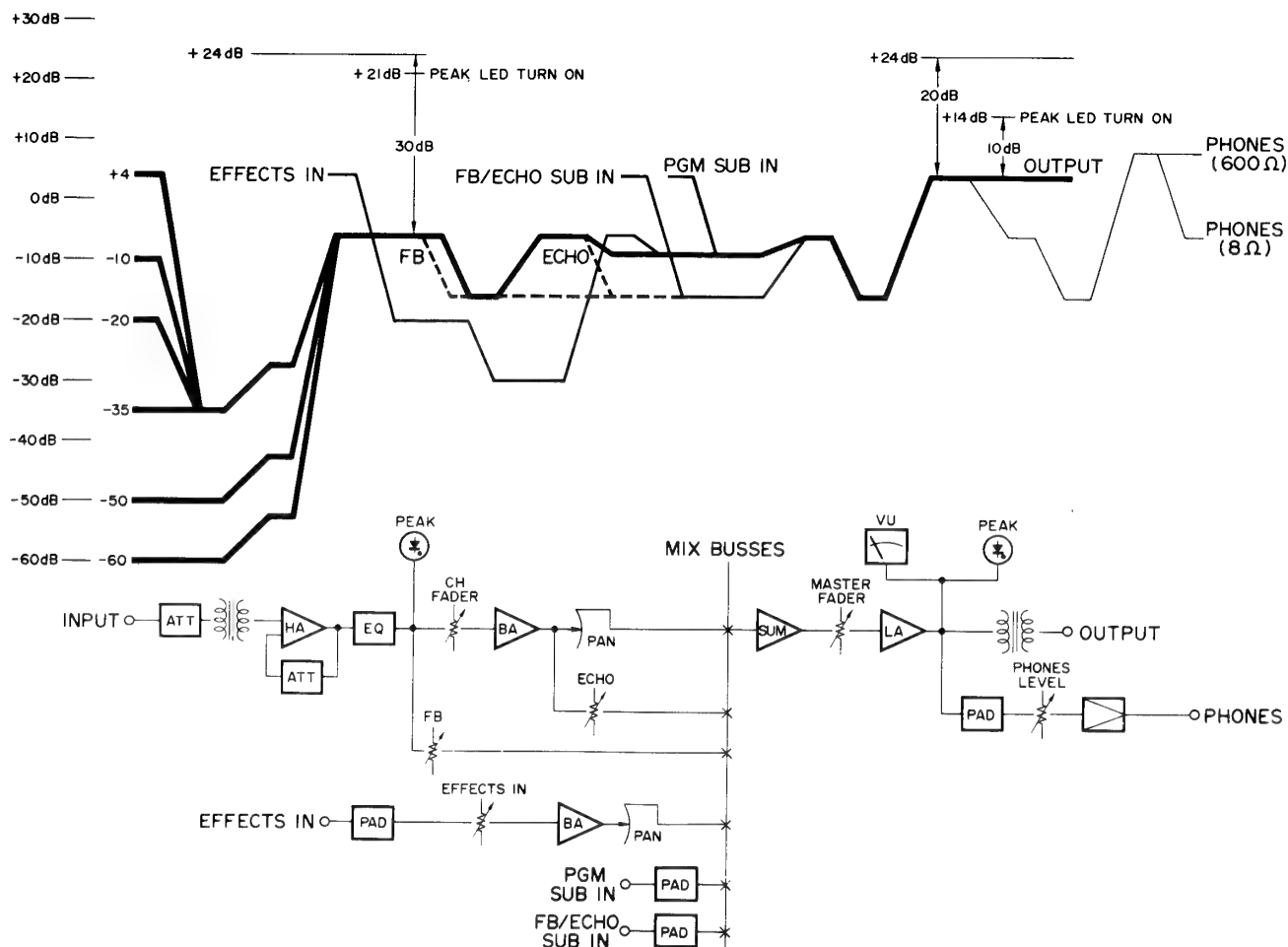
If low level and high level lines, or if either of these lines and speaker cables are run parallel for long distances, crosstalk may be great. In fact, the crosstalk can cause an electronic feedback loop, oscillation, and possible damage to the equipment. To minimize crosstalk, physically separate low level (microphone) cables from high level (line) cables by the greatest feasible distance. Keep speaker cables away from both low and high level signal cables. At any point where cables meet, run low level cables perpendicular to high level or speaker cables. If low and high level or speaker cables must be run parallel and in close proximity to one another, they should be bundled separately.

## DIMENSIONS



UNIT : mm  
( ) : M508

# LEVEL DIAGRAM & INPUT-OUTPUT SPECIFICATIONS



## INPUT CHARACTERISTICS

CONNECTION	INPUT LEVEL SWITCH	ACTUAL LOAD IMPEDANCE	FOR USE WITH NOMINAL	SENSITIVITY** (at MAX. GAIN)	INPUT LEVEL		CONNECTOR*** IN MIXER
					NOMINAL	MAX. BEFORE CLIP	
INPUTS (M512 CH1 ~ 12 M508 CH1 ~ 8)	-60dB* -50dB -35dB -20dB -10dB + 4dB	800Ω 800Ω 800Ω 1kΩ 2kΩ 4kΩ	50 ~ 250Ω MICROPHONES OR 600Ω LINE LEVEL SOURCES	-80dB(0.08mV) -70dB(0.25mV) -55dB(1.4mV) -40dB(7.8mV) -30dB(24.5mV) -16dB(123mV)	-60dB(0.78mV) -50dB(2.5mV) -35dB(14mV) -20dB(78mV) -10dB(245mV) + 4dB(1.23V)	-30dB(25mV) -20dB(78mV) - 5dB(436mV) + 10dB(2.45V) + 20dB(7.75V) + 24dB(12.3V)	XLR-3-31
EFFECTS IN (1 ~ 3)		10kΩ	600Ω LINES	-16dB(123mV)	+4dB(1.23V)	+24dB(12.3V)	PHONE JACK (TRS)
SUB IN PGM (L, R) SUB IN FB SUB IN ECHO		1kΩ	600Ω LINES	-6dB(389mV) 389	+4dB(1.23V)	+24dB(12.3V)	PHONE JACK (TRS)

## OUTPUT CHARACTERISTICS

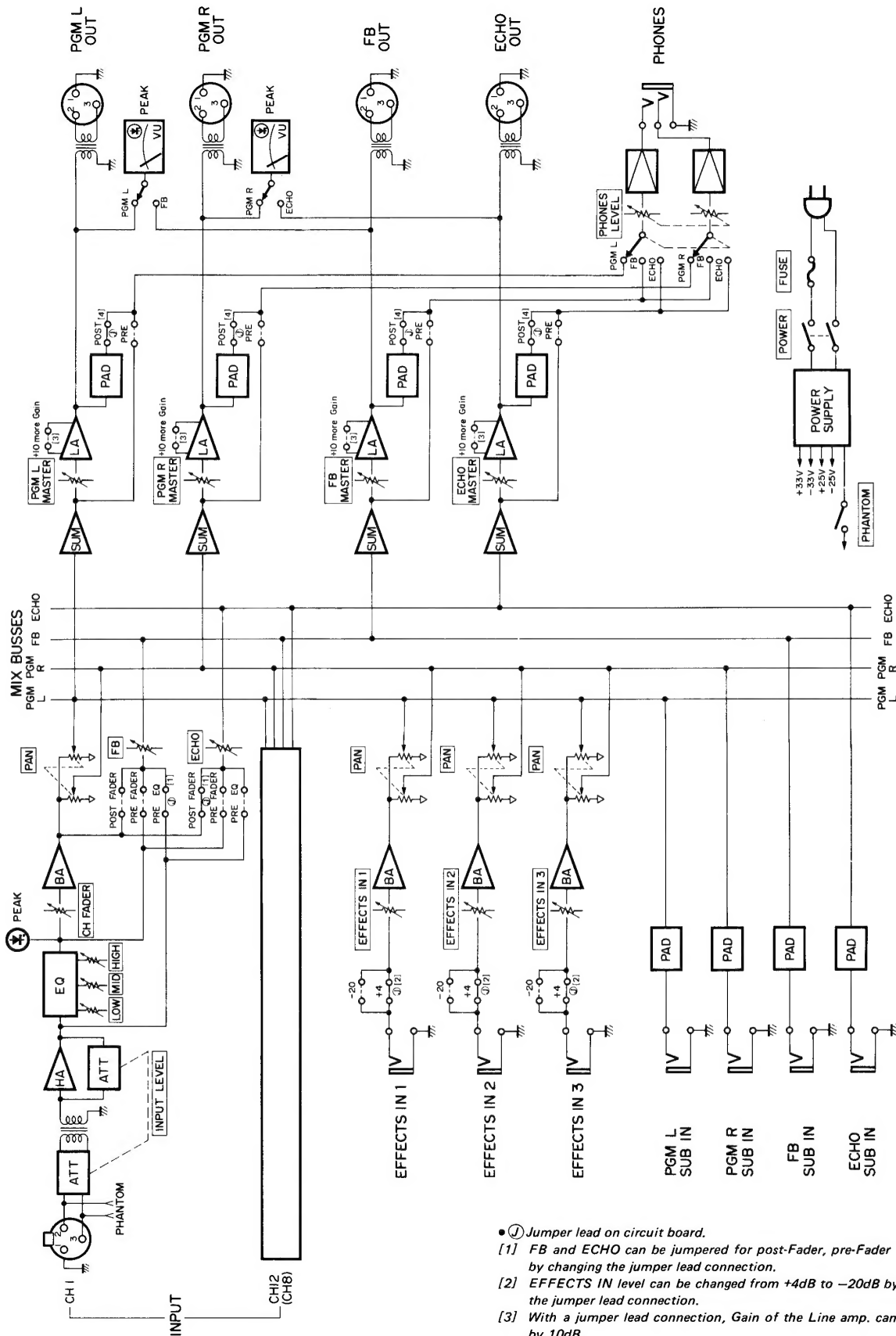
CONNECTION	ACTUAL SOURCE IMPEDANCE	FOR USE WITH NOMINAL	OUTPUT LEVEL		CONNECTOR*** IN MIXER
			NOMINAL	MAX. BEFORE CLIP	
PGM OUT (L, R) FB OUT ECHO OUT	150Ω	600Ω LINES	+4dB(1.23V) 389	+24dB(12.3V)	XLR-3-32
HEADPHONES	40Ω	8Ω PHONES 600Ω LINES	-6dB(389mV) +8dB(1.95V)	+ 4dB(1.23V) +18dB(6.16V)	STEREO PHONE JACK

\* 0dB is referenced to 0.775V r.m.s.

\*\* Sensitivity is the level required to produce a nominal output of +4dB (1.23V) or the specified nominal output level if other than +4dB.

\*\*\* All XLR connectors are floating (balanced channel inputs) and transformer-isolated. TRS phone jacks are unbalanced, with separate audio common and chassis ground connections (except headphone jacks, wired Tip = Left, Ring = Right, Sleeve = Common).

# BLOCK DIAGRAM



• Jumper lead on circuit board.

[1] FB and ECHO can be jumpered for post-Fader, pre-Fader or pre-EQ by changing the jumper lead connection.

[2] EFFECTS IN level can be changed from +4dB to -20dB by changing the jumper lead connection.

[3] With a jumper lead connection, Gain of the Line amp. can be raised by 10dB.

[4] The monitor position (PHONES input) can be jumpered for pre-Master Fader by changing the jumper lead connection.

• Each OUTPUT and INPUT are in phase but PHONES out is out of phase.

# NOTES (For U.S.A)

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## POWER MAINS

U.S.A. and Canadian models are designed to operate from 110 to 120V AC, 50 or 60Hz power mains. The mixer must be AC grounded for safety and for proper shielding; a 3-wire power cable is provided for this purpose. If a 3-wire outlet is not available, or if there is any chance the outlet may not be grounded, a separate jumper wire must be connected from the mixer chassis to an earth ground. Cold water pipes generally provide good grounds, although if they are insulated by a length of PVC pipe or a water meter, cold water pipes are not good grounds. (An electrical wire bypasses some meters, supplying ground continuity for the cold water pipes.) Avoid hot water pipes and gas pipes. When in doubt, use a length of copper

pipe driven into moist, salted earth, burying at least 1.5m (5') of pipe, or one of the newer chemical type ground rods.

Connect the mixer to the power mains *only after confirming that the voltage and line frequency are correct. (By all means, use a voltmeter . . . it can save your equipment and the show.)* It is also a good idea to check for proper polarity in the AC outlet. The Power Switch on the mixer should be Off before connecting the mixer to the mains. As a precaution, disconnect the mixer from the mains while audio cables are being installed.

## THEORY OF GROUNDINGS

Careful grounding procedures are essential for proper operation, not only of the Mixer, but of the entire audio system. Many grounding techniques exist, and certainly there are several ways to achieve a satisfactorily grounded audio system. Several books have been written on the subject. For further information (to complement the information presented below), consult the following sources.

THE AUDIO CYCLOPEDIA by Howard M. Tremaine

(Pub. Howard W. Sams);

SOUND SYSTEMS by Don and Carolyn Davis

(Pub. Howard W. Sams);

GROUNDING AND SHIELDING IN INSTRUMENTATION

by Ralph Morrison

(Pub. John Wiley & Sons).

## WARNING

In any audio system installation, governmental and insurance underwriters' electrical codes must be observed. These codes are based on safety, and may vary in different localities; in all cases, local codes take precedence over any suggestions contained in this manual. As set forth in the Mixer Warranty, Yamaha International Corporation shall not be liable for incidental or consequential damages, including injury to persons or property, resulting from improper, unsafe or illegal installation or use of the Mixer or of any related equipment; neither shall the Corporation be liable for any such damages arising from defects or damage resulting from accident, neglect, misuse, modification, mistreatment, tampering or any act of nature.

## **SERVICE**

The M508/M512 mixer is supported by Yamaha's worldwide network of factory trained and qualified dealer service personnel. In the event of a problem, contact your nearest Yamaha dealer.

